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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,311	11/26/2003	Yudong Zhu	GEGR8082.002	8836
7590 08/05/2005 Ziolkowski Patent Solutions Group, LLC 14135 North Cedarburg Road Mequon, WI 53097			EXAMINER SHRIVASTAV, BRIJ B	
			ART UNIT 2859	PAPER NUMBER

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,311

Applicant(s)

ZHU, YUDONG

Examiner

Brij B. Shrivastav

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-16,18,19 and 21-23 is/are rejected.
- 7) ☒ Claim(s) 3,17 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's remarks and restriction election letter dated June 3, 2005 has been received. Examiner hereby withdraws the species requirement imposed in the Office action dated April 29, 2005. The pending claims in the application are 1-23.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 6-9 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Katscher et al (US 6,828,790), and further in view of Ibrahim, Magnetic Resonance Imaging 19 (2001) 1339-13-47.

Katscher et al teach a computer readable storage medium having a computer program stored thereon and representing a set of instructions that when executed by a computer causes the computer to generate an RF pulsing sequence tailored to a respective transmit coil such that RF power deposition during MR imaging is reduced (figure 1, numeral 15 and 20; column 1, lines 33-67; column 4 and 5, lines 7-67 and 1-45; column 1, lines 33-43). However, Katscher et al do not teach acquiring a B1 field map for each transmit coil of a transmit coil array to determine from the B1 field maps a spatiotemporal variation of a composite B1 field. Ibrahim et al teach acquiring a B1 field map for each transmit coil of a transmit coil array to determine from the B1 field maps a spatiotemporal variation of a composite B1 field (see abstract; page 1339-1340, column 1, 2 and 1, pages 1343-1346, relating distribution of the B1 field).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt teaching of Ibrahim et al acquiring B1 field maps and to adapt to the teachings of Katscher et al to improve B1 homogeneity improving image quality.

As regards to claims 2, 4-6, 8 and 9, Katscher et al further teach linearly arranged coils, where parallel coil excitation achieves desired profile based on the magnetic field created by the coils without deviation of the desired profile in effective B1 field (column 1, lines 33-65, 1-57).

As regards to claims 7 and 14, Katscher et al further do not specifically teach 2D or 3D images, Ibrahim et al show 2D and 3D images, It would have been obvious to one of ordinary skill to adapt 2D and 3D teachings of Ibrahim et al with the teachings of Katscher et al providing access to a physician to observe a tissue in situ at different angles.

3. Claims 10-13, 15, 16, 18, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katscher et al (US 6,828,790), and further in view of Zhang (US 6,801,037).

As regards to claims 10 and 18, Katscher et al teach an MRI apparatus and method, including a magnetic resonance imaging (MRI) system having a magnet to impress a polarizing magnetic field (figure 1, numeral 10), a plurality of gradient coils positioned about a bore of the magnet to induce a magnetic field gradient (figure 1, numerals 11 and 12; column 4, lines 6-47), and a transmit coil array having a plurality of transmit coils, an RF transceiver system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MR images (figure 1, numerals 13, 15, 16 and 20; column 4 and 5, lines 48-67 and 1-31; column 7, lines 41-65). However, Katscher et al specifically do not teach a computer programmed to independently control the plurality of transmit coils. Zhang teaches a computer programmed to independently control functioning of the plurality of transmit coils (figures 1, 2, 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adapt teaching of Zhang with the teaching of Katscher et al to improve functioning of transmit coils by use of a computer, improving image quality.

Claims 11-13, 15, 16, 19, 21 and 22 are further rejected as Katscher et al further teach linearly arranged coils and computer program designing RF pulse according to field variation and achieving coil excitation simultaneously to control excitation to focus as desired in the subject (column 1 and 2, lines 38-67 and 1-67 and 11-54).

Allowable Subject Matter

4. Claims 3, 17 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B Shrivastav whose telephone number is 571-272-2250. The examiner can normally be reached on 7 AM to 4 PM.

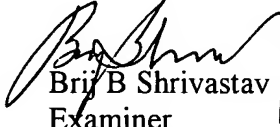
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 3, 2005


Brij B Shrivastav
Examiner
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